Comments on Sediment Quality Triad and Porewater Field Report (Tierra Solutions, Inc., July 2016) Comments Prepared by: Louis Berger, Battelle, and NJDEP

Date: 13 December 2016

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Commen t No.	Section	Page	Comment
1	Section 1.0 Introduction Item 1	Bottom of Page 1 to Page 2 of 6 (PDF pgs. 6-7)	Please clarify or edit the phrase "identify potential cause-and-effect relationships between two or more of the components," (page 1-2). Sediment chemistry is the only stressor (causal) factor of the three SQT components listed; the other two components are measures of effect. Observed biological response in the absence of comparatively elevated sediment contaminants would suggest that another stressor may be present in the system.
2	Section 1.0 Introduction	First full paragraph on Page 2 of 6 (PDF page 7)	Please replace the phrase "model ingestion of chemicals" with either "model trophic transfer of chemicals" or "model chemical exposure."
3	Section 1.0 Introduction	Last paragraph on Page 2 of 6 (PDF page 7)	To be consistent with the SQT QAPP, please add the following sentence to the last paragraph on Page 2 of 6: "Some of these sediment samples will be collected from the sample locations as intertidal area samples for the SQT evaluation, and some will be additional, non-SQT samples from other target shoreline locations."
4	Section 1.2 Investigative Approach	Page 3 of 6 (PDF page 8)	Please add text stating that the ex-situ porewater analytical data will also be used to evaluate the potential narcotic effect of PAHs and pesticides on benthic organisms using the sum Toxic Unit approach. The following guidance documents should be considered for this data evaluation: <i>Procedures for the Derivation of Equilibrium Partitioning Sediment Benchmarks (ESBs) for the Protection of Benthic Organisms: PAH Mixtures</i> (EPA 600-R-02-013) and <i>Equilibrium Partitioning Sediment Benchmarks (ESBs) for the Protection of Benthic Organisms: Procedures for the Determination of the Freely Dissolved Interstitial Water Concentrations of Nonionic Organics</i> (EPA/600/R-02/012; R.M. Burgess, S.B.K. Driscoll, R.J. Ozretich, D.R. Mount and M.C. Reilly, 2012). The second document summarizes 15 years of research, beginning with Di Toro and his coworkers' development of the equilibrium partitioning (EqP) concept, early efforts by EPA to develop sediment EqP-based benchmarks (such as the 2003 document referenced in NJDEP's comment), and extensive work to develop a comprehensive toxicity dataset focused on narcosis effects.

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5	Section 1.2 Investigative Approach / Section 1.2.2 Baseline Human Health Risk Assessment	First paragraph on Page 3 of 6 and second paragraph on Page 4 of 6 (PDF pages 8–9)	When discussing the previous field programs, please state clearly that the 2014 sediment samples (co-located with the softshell clam collection locations) can also support the BHHRA. As written, only the fish and shellfish tissue are listed to support the BHHRA. A similar comment applies to Section 1.2.2.
6	Section 2.0 Field Activities Table 2	Third Bullet on Page 1 of 12 (PDF page 12) and Table 2 (PDF page 27)	Please clarify the third bullet "Sediment, benthic invertebrate, and surface water collection." Surface water was not a targeted matrix (for example, surface water field samples were not collected). Instead surface water was collected and used in the field facility for the shipment of passive samplers (so they would not dry out). A similar comment applies to Table 2; please remove surface water from Table 2 or add a footnote stating that the SQT program did not include collection of surface water field samples for laboratory analysis.
7	Section 2.0 Field Activities	Fifth Bullet on Page 1 of 12 (PDF page 12)	Please delete the phrase "and sample collection" from the fifth bullet because "collection" is previously identified in the third bullet on Page 1 of 12.
8	Section 2.5.1 Procedures Used for Sample Collection	Page 6 of 12 (PDF page 17)	Please note in the text that sediment sample redox conditions likely changed during homogenization in the mechanical mixer, in comparison to the in-situ conditions of each individual sediment grab sample. Please also note that the potential impacts of changes in redox conditions on the ex-situ porewater analytical results will be discussed in the risk assessment's uncertainty analysis.
9	Section 2.5.1.2 Toxicity and Bioaccumulatio n Testing	Page 7 of 12 (PDF page 18)	Please clarify the first sentence of Section 2.5.1.2 by adding the phrases "out of 30" prior to the word "stations" and "(no bioaccumulation testing)" following the word "conducted".
10	Figure 3	General Comment (PDF page 40)	Similar to SQT QAPP Figure 1, please identify at each location on Field Report Figure 3 the different types of samples that were collected (especially since only sediment was collected at the BHHRA locations).

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11	Appendix A and	Appendix A,	Please compare Appendix A "Protocol Modification Form: Sediment Sampling Locations"
	Table 1	Protocol	with Table 1 on PDF page 26 for accuracy. The Protocol Modification indicates that only
		Modification Form	three locations were shifted due to utilities; however, Table 1 indicates that four
		(PDF page 43) and	locations were shifted. (Note that the text also states that four sampling locations were
		Table 1 (PDF page	shifted due to utilities on PDF page 13.) Please review and revise as necessary.
		26)	
12	Appendix B	General Comment	Please add a cover page to Appendix B to explain the reason for presenting the single
		(PDF page 47)	laboratory summary report, or cross-reference Section 2.1.4 of the text.
13	Appendix C	General Comment	Please sort Appendix C by Location ID instead of by collection date, so that information
		(PDF page 60)	can be located more easily. Please confirm that Appendix C is complete, because
			Location 172 was not readily located and Location 177 appears twice.
14	Appendix D	General Comment	For Locations 136-165, four photographs per locations are presented in Appendix D for
		(PDF pages 294-	the benthic invertebrate community study (Replicate A, Replicate B, Replicate C, and the
		306)	post-mixing sediment sample). Only a photograph of the post-mixing sample is
			presented for remaining Locations 166-178. Please confirm that Appendix D is complete
			as submitted, or include the missing photographs for Locations 166-178.
15	Appendix E and	Appendix E,	For Location 161, USEPA's oversight contractor only collected split samples for sediment
	Table 5	Sample Processing	toxicity and bioaccumulation. There was no split sample collected at Location 161 for
		Form (Loc. 161;	sediment chemistry. Please correct the Surface Sediment Sample Processing Form dated
		PDF page 333) and	16 September 2015 (Location ID 161) and Table 5. (A total of five split samples were
		Table 5 (PDF page	collected for sediment chemistry.)
		36)	